

10/528315  
PCT/EP02/12447



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Patentanmeldung Nr. Patent application No. Demande de brevet n°

02021497.9

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Anmeldung Nr:  
Application no.: 02021497.9  
Demande no:

Anmeldetag:  
Date of filing: 26.09.02  
Date de dépôt:

Anmelder/Applicant(s)/Demandeur(s):

SIEMENS AKTIENGESELLSCHAFT  
Wittelsbacherplatz 2  
80333 München  
ALLEMAGNE

Bezeichnung der Erfindung/Title of the invention/Titre de l'invention:  
(Falls die Bezeichnung der Erfindung nicht angegeben ist, siehe Beschreibung.  
If no title is shown please refer to the description.  
Si aucun titre n'est indiqué se référer à la description.)

Method and apparatus for carrying out diagnosis of a technical installation

In Anspruch genommene Priorität(en) / Priority(ies) claimed / Priorité(s)  
revendiquée(s)  
Staat/Tag/Aktenzeichen/State/Date/File no./Pays/Date/Numéro de dépôt:

Internationale Patentklassifikation/International Patent Classification/  
Classification internationale des brevets:

G01N25/00

Am Anmeldetag benannte Vertragstaaten/Contracting states designated at date of  
filing/Etats contractants désignées lors du dépôt:

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LU MC NL PT SE SK TR

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## Description

Method and Apparatus for carrying out diagnosis of a technical installation

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### Background of the invention

Predicting and diagnosing of potential failures of technical installations, especially for turbines and/or generators of power plants.

Improving process control is one aim of advanced diagnosis.

### State of the Art

15 Different condition monitoring sources are used to enable engine plant assessment, e.g. vibration monitoring of turbines and/or generators.

These, mostly insular, solutions provide data sets (in most cases not compatible to each other, especially if different providers for monitoring equipment are involved) which need to be interpreted for proper condition assessment.

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Thermography utilises surface temperatures for condition monitoring (where accessible).

25 Thermo-couplers measure selected temperatures for condition monitoring and process control.

Conclusions are drawn from individual measurements.

### Embodiments of the invention

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A combination of thermal information which includes all temperature information.

All acquired measured values of temperatures of the technical installation's components, e.g. surface temperatures of a

35 turbine housing, are stored in e.g. one database (or are linked to each other).

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Occurring and/or occurred failures (and/or other process disturbances) are related to specific temperature patterns derived from a.m. acquired measured values of temperatures; said patterns are constantly being refined.

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When a particular temperature pattern is detected again, failure prediction can be made.

10 Process disturbances temperature patterns, however, may be distinguished from the ones related to failures and may be utilised for process optimisation and feedback to process enhancement.

Advantages

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No inhomogeneous data sources for failure prediction and process control.

Limitations of known Thermography and selective temperature measurements are no longer applicable.

20 Cost advantage compared to a combination of conventional condition monitoring systems.

Clear distinction between failure and process disturbance.

Feedback to process control feasible.

25 Figure

The figure illustrates a sample application.

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## Claims

- 5 1. Method for carrying out diagnosis of a technical installation,  
characterized in that a failure and/or a process disturbance related to at least one component of the technical  
10 installation is assigned at least one temperature pattern which is derived from a number of measured values of temperatures.
- 15 2. Method according to claim 1,  
characterized in that said failure and/or process disturbance and its related temperature pattern are stored for a  
comparison with an actually occurring temperature pattern during operation of the plant.
- 20 3. Apparatus for carrying out diagnosis of a technical installation,  
comprising a first computational unit for assigning at least one temperature pattern which is derived from a number of measured values of temperatures to a failure and/or  
25 a process disturbance related to at least one component of the technical installation.
- 30 4. Apparatus according to claim 3,  
further comprising a data memory for storing said failure and/or process disturbance and its related temperature pattern.
- 35 5. Apparatus according to claim 4,  
further comprising a second computational unit for comparing said stored failure and/or process disturbance and its related temperature pattern with an actually occurring  
temperature pattern during operation of the plant.

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Abstract

Method and Apparatus for carrying out diagnosis of a technical installation

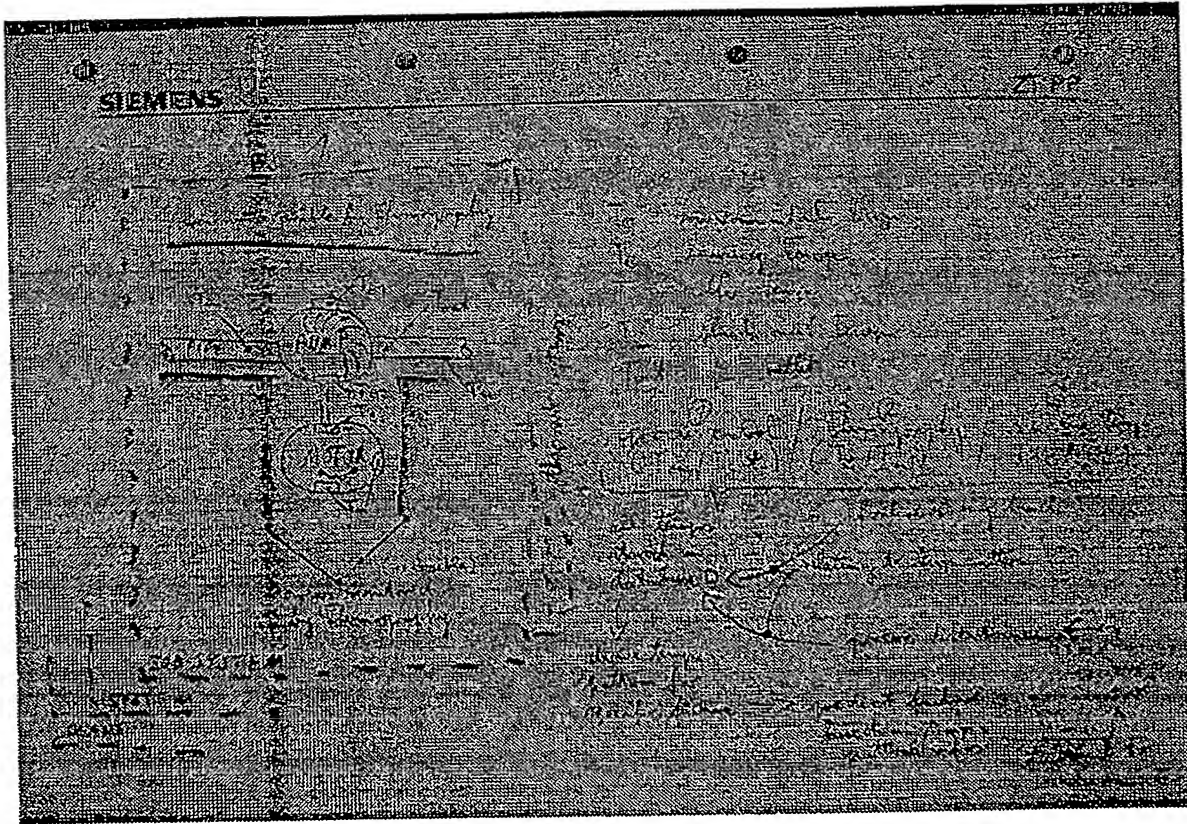
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According to the invention, a temperature pattern is derived from measured temperature values and assigned at least one failure and/or process disturbance of a technical installation.

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FIG

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5 Figure